
Pre-Feasibility Study

(Apple Treatment Plant)



Small and Medium Enterprises Development Authority

Ministry of Industries & Production

Government of Pakistan

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1 DISCLAIMER

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2 EXECUTIVE SUMMARY

Apple Treatment Plant is proposed to be located at Districts Kalat. This plant will focus on treating and packing apples on internationally acceptable standards thus improving the quality of these apples. Such apples will be accepted in international markets and therefore will help boost exports.

The apple treatment plant will be used to work on the post harvesting activity as a link between the international markets and the growers. The plant would add value to the fruit by bringing it to the international standards.

Greater shelf-life of treated and packed apples means that there will be low levels of spoilage and wastage. The economic effects from this process will trickle down till the levels of the traders and the growers

The project consists of automatic grading, washing, waxing and Packing machines with an installed production capacity of 4,800 tons per year in a single shift. The projections are based on single-shift production, for local sales. Export orders in the future will be fulfilled through the same production schedule. Capacity utilization will be 65% in the first year; it will increase at a rate of 5% annually and will be capped at 95% maximum. The plant is assumed to work for six months per year.

Total Cost Estimates is Rs.93, 848,150 with fixed investment Rs.87, 199,200 and working capital Rs.6,648, 951

Given the cost assumptions IRR and payback are 23 % and 4.81 years respectively.

The most critical considerations or factors for success of the project are:

Apple is an important crop in Balochistan in terms of the people employed, the value of the output, and the revenue it generates. The only reason of failure to export and no demand in the international Apple Market is mainly that Pakistan cannot supply the well processed, preserved, sorted, graded, waxed and properly packed apples as per the demand of the world market. The freshness of our apples from the orchard is not retained due to the lapse period of transportation and proper treatment, which is the main requisite of the international market.

In order to earn substantial foreign exchange its quite important to establish Apple treatment plant. It is worth mentioning that Pakistan is a developing country so in order to earn foreign exchange with the help of neglected value added fruit potential Apple Treatment Plant is the right project to execute

3 INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of prefeasibility studies in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

4 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in **Apple Treatment Plant** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and its successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

The project aims at setting up a Post-Harvest Apple Treatment Plant in order to promote and boost apple exports from Balochistan. Its operation will not only satisfy requirements of the international market but will also open avenues for investment in horticulture sub-sector in Balochistan. The volumes exported will significantly increase. Procurements will be made directly from the farms, which will act as a vehicle both for qualitative and quantitative improvements of apple. Consequently this will have a positive effect on production methods and growing practices. Though the main objective of the facility is to address export market requirements, considerable volumes will be traded in the domestic markets and will also set quality standards in the domestic market.

Following key parameters must be addressed;

- **Technology:** The proposed project is about Apple Treatment Plant. Its processing includes Grading, sorting washing, drying, waxing and finally packaging. The entire process flow is suggested to be semi-automatic requiring both skilled and unskilled workers.
- **Location:** The plant is proposed to be located in the District Kalat while considering other mandatory inputs i.e. availability of human resource, electricity and water etc.
- **Product:** The plant would initially process & pack Apple fruit from farms & market into hygienically treated & properly packed Apple or related products.
- **Target Market:** In addition to local markets in Quetta, Karachi, Lahore, Peshawar and Islamabad an enormous export market for the Pakistani Apple in India, Canada, USA, Germany, UK, Denmark, Australia, Bangladesh, Nepal, Sri Lanka, South Africa, Dubai, Japan, China, South Korea, North Korea etc.
- **Employment Generation:** The proposed project will provide direct employment to 20 people.

5.1 Production Process Flow

Picking of Apple

The best time of picking is determined when the fruit is matured and ripe. Decision regarding the desirable degree of maturity depends upon the timing of marketing the apple either fresh or processed. The maturity can be determined by using Refractometer.

- The workers are to be trained to pick apples deep in their palms using entire hand to avoid bruising the fruit with their fingertips.
- Stem should not be removed.
- Foot ladder should be used for picking apples instead of climbing tree.

Processing

Waxing: Freshly harvested apples have their own wax coating that protects them from shriveling and weight loss. When apples are washed, half of the wax is removed. The wax is replaced with Carnauba. The new coat of wax prevents moisture loss and retains firmness.

Packing

Most modern apple packing plant is automated to organize the apple according to size and quality. Water chutes are used to move apples within the warehouse sorters, to remove imperfect apples called culls. Cardboard cartons and net or polyethylene bags are commonly used for packing.

Scientific Storage

As apples are also perishable fruit so to keep its freshness. It must be stored in a proper storage. It is highly preferable point that it should have to place in a controlled atmosphere.

Controlled atmospheric storage is non-chemical process in which temperature, oxygen, carbon dioxide and humidity levels are carefully controlled. The temperature is kept at 32 and 36 degrees fahrenheit, humidity is held at 95% and oxygen is replaced with nitrogen and carbon dioxide. By changing the atmosphere around the apples, the ripening process is slowed and apples can be stored up to a year with little loss or no loss of quality.

Functional parameter of Apple Treatment Plant

Various functions of apple Treatment Plant are carried out by different component of the plant. Each part/component perform specific task. The scope and extent of processing depends upon the conditions of raw fruit and the required demand led objectives.

Some of the general functions of the plant are as under:

Mechanical Screening, pre grading and rejection

This activity is required as protection against wastage of money for subsequent processing operation. The undersized fruits are outright rejected.

1) *Washing and sterilisation (Sanitation unit)*

Apples are washed and disinfected with the introduction of chlorine and other chemical disinfectant)

2) *Sorting*

The sorting of apples are carried out as per predetermined parameter as per demand led strategy.

3) *Defect Identification*

The defected apples including culls are identified and are to be removed from the processing line.

4) *Waxing:*

The apples are waxed to protect the loss of liquid from the apple.

5) *Additional Protective Coating:*

This is an extra precautionary protective and decorative value added measure for top quality of apple as per the demand of the consumer market.

6) *Drying*

After waxing the apples are dried through drying tunnel in a very precise manner.

7) *Grading*

The grading in following manner:

- Color Grading
- Size grading

- Weight grading
- Shape grading

8) Packing

The packing of apples are carried out as per requirement. Mostly apples are packed in 2Kg, 5Kg and 10Kg for each variety of the graded fruit.

- *Apple Treatment System*

Various equipment units put together to create an efficient and compatible system to suite the international standard for expert.

- *Creep Feed Hopper*

These units readily accept bin tippers and other bin handling equipment. This hopper is 2.4 meters long X 1.3 meters wide which has a slow moving conveyor belt in the base to feed the fruit in to the rest of the system. The fruit can be tipped into the hopper by hand from baskets or crates or if required a bin tipper be supplied to allow bulk bin to be tipped.

- *Elevator and Sorting Table*

The inspection table gently carries the fruit on rollers, which continuously turn the fruit for inspection. Only the fruit to be graded out is handled.

Combination elevator and sorting table unit features a roller conveyor unit with 60mm dia PVC roller on 82.6mm centers 1000mm wide. The elevator section is fitted with a spray system to apply chlorine solution to the fruit. This sanitizes the fruit prior to treatment in the remainder of the line. Following the elevator the conveyor levels out to provide an inspection area allowing operators to remove any damaged or sub-standard fruit.

- *Wax and wash Unit*

This unit quickly and gently removes dirt and spray residues from the fruit, polishing it and covering it with a coating that gives the fruit a beautiful long lasting gloss.

Technically 37 brush by 1000mm wide cleaning and wax application unit. The unit is divided into four sections to treat the fruit as follows:

- Wash & wax section
- Hot water rinse
- Moisture removal

- Wax applicator

- *Wash and Wax Section*

In this section a detergent solution is foamed onto the fruit which in conjunction remove dirt, pesticide residue etc. from the fruit.

- Hot water rinse

The fruit is then cleaned with the introduction of hot water in order to remove detergent residue etc. and warm the fruit prior to waxing.

- *Moisture Removal*

This section with five brushes removes free water from the surface in preparation to entry to the wax section.

- *Wax Applicator*

In this section wax is introduced by spraying over brushes. A fully adjustable wax metering system is provided to control the flow of wax. This unit is constructed using painted steel frame, which is fitted with galvanized steel side panel and drain trays etc.

- *Drying Tunnel*

The dryer is a flow through tunnel, which dries the coating of wax on the apples. It features high velocity airflow pattern. To facilitate wax drying a 7.6-mm long by 1200mm wide warm air tunnel is provided. This unit uses a roller conveyor (51mm diagalvanized steel) to transport the fruit. LP gas heating fan units delivers a high volume of air over the fruit to dry wax to high shine. Apple driers have variable speed roller conveyor that moves the apples through hot air tunnel.

The temperature and humidity are constantly controlled to keep the fruit cool an assuring the maximum drying efficiently. In drier the humidity level is either manually operated or automatically controlled.

This unit consists of following systems

- Variable speed main drive.
- High volume fan units.
- LP gas heaters.
- Flame failure system

- Over temperature protection.
 - *Transfer Conveyor*

Standard flat belt conveyor 1800mm long by 1200mm wide distributes fruit from the tunnel to the sizer.

- *Sizer*

The sizer is fast and accurate and gentle to the fruit.

To sort the fruit into size categories a 2 lane by 10 outlets optical Sizer is used in accordance with sealed ranges and distributes fruit into bins ready for packing. This advance sorting system provides today's packer with new means of sorting grading and sizing, giving unparalleled accuracy and flexibility to streamline production and cut costs. The unit is computer controlled and features:

- PC Programming System and packout record display.
- Variable speed main drive
- Split belt Singulator
- Remote programming terminal
- UPS power lifer

(A) Precision

Multiple views are taken of each piece of fruit with either multiple monochrome or full color cameras to thoroughly examine and measure each piece of fruit allowing accurate sizing of even shaped fruit.

(B) Versatility

Versatility is added with weight option, which can sort, by volume, size, shape, color attribute, weight or density.

(C) Gentle

The mechanical portion of the sorter features a patented rollers conveyor system, which not only eliminates the need for a separate singulator and provide a very gentle handling of fruit featuring a gentle ejection systems to roll the fruit off the conveyor onto padded unloading chutes. The system is not only gentle and fast but also quite, which is important in providing an efficient working environment.

- *Packing*

To facilitate packing 10 padded rotating lines 1.5 meters diameter are provided along one side of the machine.

5.2 Installed and Operational Capacities

The yearly production capacity of the plant will be 60,000,000 Kgs of Apples, based on single-shift production. Projection Capacity utilization will be 65% in the first year and increased at a rate of 5% annually and will be capped at 95%.

6 CRITICAL FACTORS

An analysis of the Strengths, Weaknesses, Opportunities and Threats is detailed as follows:

2.1. Strengths:

- Availability of raw material at low prices,
- Little competition as no such facility is present in the apple producing areas
- Installation of the plant in the growing areas will decrease the transportation and raw material cost.

2.2. Weaknesses:

- Intensive care of hygiene is required to handle apple during processing, packing and storage both in raw & processed form to preserve its shape, taste & quality.

2.3. Opportunities:

- Hygienically treated, packed and high Quality apple will bring more revenues from exports and even from sale in the local market due to ever increasing demand of apple
- Hygienically packed apple will enhance the shelf life therefore, give good revenues.
- Proper Management with expert human resource will lead to higher results & Profits
- High demand local consumption and Export.

2.4. Threats:

- Poor hygiene or miss handling may lead to bacteria or fungus accumulation and destroy the entire stock.
- High import of Iranian apple

7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The plant is proposed to be located district Kalat, while considering other mandatory inputs i.e. availability of human resource, electricity and water etc

8 POTENTIAL TARGET CUSTOMERS / MARKETS

In addition to local markets in Quetta, Karachi, Lahore, Peshawar and Islamabad an enormous export market for the Pakistani apple exists in India, Canada, USA, Germany, UK, Denmark, Australia, Bangladesh, Nepal, Sri Lanka, South Africa, Dubai, Japan, China, South Korea, North Korea etc

9 PROJECT COST SUMMARY

9.1 Project Economics

All the figures in this financial model have been calculated for estimated sales of Rs.97, 500,000 in the year one. The capacity utilization during year one is worked out at 65% with 5% increase in subsequent years up to the maximum capacity utilization of 95%.

The following table shows internal rate of return, payback period and net present value of the proposed venture.

Table 1: Project Economics

Description	Details
Internal Rate of Return (IRR)	23%
Payback Period (yrs.)	4.81
Net Present Value (Rs.)	60,426,341

9.2 Project Financing

Following table provides details of the equity required and variables related to bank loan;

Table 2: Project Financing

Description	Details
Total Equity (50%)	Rs. 46,924,075
Bank Loan (50%)	Rs. 46,924,075
Markup to the Borrower (%age / annum)	14
Tenure of the Loan (Years)	10

9.3 Project Cost

Following fixed and working capital requirements have been identified for operations of the proposed business.

Table 3: Project Cost

Capital Investment	Amount (Rs.)
Land	1,083,300
Building/Infrastructure	17,180,940
Machinery & equipment	59,819,002
Furniture & fixtures	522,000
Office vehicles	2,472,000
Office equipment	779,000
Pre-operating costs	5,342,958
Total Capital Costs	87,199,200
Working Capital	Amount (Rs.)
Equipment spare part inventory	325,000
Raw material inventory	1,300,000
Upfront insurance payment	3,114,550
Cash	

Total Working Capital	1,909,400
	6,648,951
Total Investment	93,848,150
Initial Financing	Amount (Rs.)
Debt	46,924,075
Equity	46,924,075

9.4 Space Requirement

The space requirement for the proposed Apple Treatment Plant is estimated **25,000 Sq feet**, considering various facilities including management office, production hall, storage, open space, etc. Details of space requirement and cost related to land & building is given below;

Table 4: Space Requirement

Description	Estimated Area (Sq.Ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Management Building	1,008	1,800	1,814,400
Fumigation Chamber	1,600	1,800	2,880,000
Foundation for Machinery & building - processing hall	6,000	1,200	7,200,000
Warehouse	2,000	1,800	3,600,000
Boundary wall	1	1,000,000	1,000,000
Restrooms	224	1,800	403,200
Ground & open Space	14,167	20	283,340
Total	24,999		17,180,940

9.5 Machinery & Equipment Requirement

Machinery and equipment for the proposed project are stated below.

Table 5: Machinery & Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Sorting Machine & Tables	1	5,500,000	5,500,000
Washing chamber with conveyor & Waxing Machine	1	7,000,000	7,000,000
Grading Machine	1	9,000,000	9,000,000
Puree Machine	1	5,000,000	5,000,000
Packing Machine	1	4,500,000	4,500,000
PVC Moulding Machine	1	4,000,000	4,000,000
Jam, Jelly & Juice Maker	1	9,500,000	9,500,000
Tube Well with Accessories	1	1,000,000	1,000,000
Generator	1	1,200,000	1,200,000
Installation & Misc	1	4,000,000	4,000,000
Total machinery cost			50,700,002
GST 17%	17%		8,619,000.34
Total			59,319,002

Transportation charges	1	500,000	500,000
Grand Total			59,819,002

9.6 Furniture & Fixtures Requirement

Details of the furniture and fixture required for the project are given below;

Table 6: Furniture & Fixture

Description	Quantity	Cost per Unit	Total
Tables	6	20,000	120,000
Executive Chairs	6	18,000	108,000
Visitor Chairs	12	7,000	84,000
Air conditioners (1.ton split)	6	25,000	150,000
Steel Safe & other Fixtures	1	60,000	60,000
Air conditioners (2 ton split)	-		
Total			522,000

9.7 Office Equipment Requirement

Following office equipment will be required for Apple Treatment Plant; (Please customize as per requirement of project)

Table 7: Office Equipment

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Laptop	1	75,000	75,000
Computer	4	60,000	240,000
Computer printer (s)	2	22,000	44,000
Telephone exchange			

Telephones	1	100,000	100,000
Fax machines	8	5,000	40,000
Photo Copier & Projector	1	30,000	30,000
Total			704,000

9.8 Human Resource Requirement

In order to run operations of Apple Treatment Plant smoothly, details of human resources required along with number of employees and monthly salary are recommended as under;

Table 8: Human Resource Requirement

Description	No. of Employees	Monthly Salary per person (Rs.)
Project Manager	1	100,000
Quality Assurance Officer	1	75,000
Assistant Plant Manager	1	85,000
Skilled workers	3	25,000
Semi-Skilled Workers	4	20,000
Accounts and Admin Officer	1	40,000
Guards	2	18,000
Plant Operator	1	25,000
Telephone operator Cum Receptionist	1	30,000
Electrician	1	20,000
Mechanic	1	20,000
Driver	1	18,000
Office Boy	1	18,000
Sweepers	1	18,000
Total	20	

Note: (Minimum Wage forecasted Rs. 18000/ in next financial Year)

9.9 Utilities and other Costs

An essential cost to be borne by the project is the cost of electricity, PoL for generator and water. The electricity expenses are estimated to be around Rs. 84,933 per month, whereas, PoL expenses are estimated to be Rs. 45,500 / year (Generator PoL). Furthermore, promotional expense being essential for marketing

of Apple Treatment Plant is estimated as 1% of administrative / Cost of Sales expenses.

Please do highlight other costs if considered critical for the project.

9.10 Revenue Generation

Based on the capacity utilization of 65 %, sales revenue during the first year of operations is estimated Rs.97, 500,000 /- (10 year Revenue is shown in Income statement of the project)

10 USEFUL WEB LINKS

Links of Federal & Provincial Government, Semi Government and other (sector & Cluster based) Development organizations are to be given under this heading so to enable potential investors to get benefit from the services offered. Web links of various organizations are given as example however, links of only relevant organizations should be given;

Small & Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries & Production	www.moip.gov.pk
Ministry of Education, Training & Standards in Higher Education	http://moptt.gov.pk
Government of Punjab	www.punjab.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Khyber Pakhtunkhwa	www.khyberpakhtunkhwa.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	www.gilgitbaltistan.gov.pk
Government of Azad Jamu Kashmir	www.ajk.gov.pk
Trade Development Authority of Pakistan (TDAP)	www.tdap.gov.pk
Security Commission of Pakistan (SECP)	www.secp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
State Bank of Pakistan (SBP)	www.sbp.org.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk
Pakistan Horticulture Development and Export Company (PHDEC)	www.phdec.org.pk

Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Technical Education and Vocational Training Authority (TEVTA)	www.tevta.org
Pakistan Readymade Garment Technical Training Institute	www.prgmea.org/prgtti/
Livestock & Dairy Development Department, Government of Punjab.	www.livestockpunjab.gov.pk
Punjab Industrial Estates (PIE)	www.pie.com.pk
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	www.fiedmc.com.pk

11 ANNEXURES

11.1 Income Statement

Statement Summaries										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
Revenue	97,500,000	115,500,000	136,125,000	159,720,000	186,672,750	217,418,850	252,447,443	277,692,187	305,461,405	336,007,546
Cost of goods sold	48,977,200	58,317,958	67,077,015	79,145,575	94,773,051	108,129,794	126,039,243	138,536,457	152,273,002	167,371,801
Gross Profit	48,522,800	57,182,042	69,047,985	80,574,425	91,899,699	109,289,056	126,408,199	139,155,730	153,188,403	168,635,745
<i>General administration & selling expenses</i>										
Administration expense	26,730,000	32,519,208	35,685,324	42,997,174	51,394,537	56,398,382	66,960,421	73,479,783	80,633,878	88,484,506
Rental expense	-	-	-	-	-	-	-	-	-	-
Utilities expense	-	-	-	-	-	-	-	-	-	-
Travelling & Comm. expense (phone, fax, etc.)	243,000	295,629	324,412	390,883	467,223	512,713	608,731	667,998	733,035	804,405
Office vehicles running expense	74,160	81,576	89,734	98,707	108,578	119,435	131,379	144,517	158,969	174,865
Office expenses (stationary, etc.)	243,000	295,629	324,412	390,883	467,223	512,713	608,731	667,998	733,035	804,405
Promotional expense	975,000	1,155,000	1,361,250	1,597,200	1,866,728	2,174,189	2,524,474	2,776,922	3,054,614	3,360,075
Insurance expense	3,114,550	2,803,095	2,491,640	2,180,185	1,868,730	1,557,275	1,245,820	934,365	622,910	311,455
Professional fees (legal, audit, etc.)	487,500	577,500	680,625	798,600	933,364	1,087,094	1,262,237	1,388,461	1,527,307	1,680,038
Depreciation expense	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247
Amortization expense	1,068,592	1,068,592	1,068,592	1,068,592	1,068,592	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	-	-	-	-	-	-	-	-	-	-
Subtotal	40,154,049	46,014,476	49,244,236	56,740,471	65,393,221	69,580,048	80,560,041	87,278,291	94,681,995	102,837,996
Operating Income	8,368,751	11,167,565	19,803,749	23,833,954	26,506,478	39,709,008	45,848,158	51,877,439	58,506,407	65,797,748
Other income	-	-	-	-	-	-	-	-	-	-
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
Earnings Before Interest & Taxes	8,368,751	11,167,565	19,803,749	23,833,954	26,506,478	39,709,008	45,848,158	51,877,439	58,506,407	65,797,748
Interest expense	6,226,649	5,647,459	5,277,687	4,852,693	4,364,229	3,802,817	3,157,563	2,415,945	1,563,572	583,904
Earnings Before Tax	2,142,102	5,520,106	14,526,062	18,981,261	22,142,248	35,906,191	42,690,595	49,461,494	56,942,835	65,213,844
Tax	275,920	1,178,532	4,306,621	5,865,941	6,972,286	11,789,666	14,164,208	16,534,022	19,152,492	22,047,345
NET PROFIT/(LOSS) AFTER TAX	1,866,182	4,341,575	10,219,441	13,115,320	15,169,962	24,116,525	28,526,387	32,927,472	37,790,344	43,166,499
Balance brought forward		933,091	2,637,333	6,428,387	9,771,854	12,470,908	18,293,716	23,410,052	28,168,762	32,979,553
Total profit available for appropriation	1,866,182	5,274,666	12,856,774	19,543,707	24,941,816	36,587,433	46,820,104	56,337,524	65,959,106	76,146,052
Dividend	933,091	2,637,333	6,428,387	9,771,854	12,470,908	18,293,716	23,410,052	28,168,762	32,979,553	38,073,026
Balance carried forward	933,091	2,637,333	6,428,387	9,771,854	12,470,908	18,293,716	23,410,052	28,168,762	32,979,553	38,073,026

11.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rs. in actuals										
Assets											
<i>Current assets</i>											
Cash & Bank	1,909,400	5,019,391	12,342,370	21,070,172	28,724,583	34,997,082	42,454,631	48,607,838	53,304,532	56,969,452	73,701,457
Accounts receivable	-	1,869,863	2,042,466	2,412,842	2,836,870	3,321,574	3,874,851	4,505,567	5,083,531	5,591,884	6,151,072
Finished goods inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment spare part inventory	325,000	404,250	500,259	616,320	756,340	924,959	1,127,679	1,302,469	1,504,352	1,737,527	-
Raw material inventory	1,300,000	1,694,000	2,196,150	2,834,498	3,644,101	4,668,736	5,963,014	7,215,247	8,730,449	10,563,843	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	3,114,550	2,803,095	2,491,640	2,180,185	1,868,730	1,557,275	1,245,820	934,365	622,910	311,455	-
Total Current Assets	6,648,951	11,790,599	19,572,886	29,114,017	37,830,624	45,469,627	54,665,995	62,565,486	69,245,774	75,174,160	79,852,529
<i>Fixed assets</i>											
Land	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300	1,083,300
Building/Infrastructure	17,180,940	16,321,893	15,462,846	14,603,799	13,744,752	12,885,705	12,026,658	11,167,611	10,308,564	9,449,517	8,590,470
Machinery & equipment	59,819,002	53,837,102	47,855,202	41,873,302	35,891,401	29,909,501	23,927,601	17,945,701	11,963,800	5,981,900	-
Furniture & fixtures	522,000	469,800	417,600	365,400	313,200	261,000	208,800	156,600	104,400	52,200	-
Office vehicles	2,472,000	2,224,800	1,977,600	1,730,400	1,483,200	1,236,000	988,800	741,600	494,400	247,200	-
Office equipment	779,000	701,100	623,200	545,300	467,400	389,500	311,600	233,700	155,800	77,900	-
Total Fixed Assets	81,856,242	74,637,995	67,419,748	60,201,501	52,983,253	45,765,006	38,546,759	31,328,512	24,110,264	16,892,017	9,673,770
<i>Intangible assets</i>											
Pre-operation costs	5,342,958	4,274,366	3,205,775	2,137,183	1,068,592	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	5,342,958	4,274,366	3,205,775	2,137,183	1,068,592	-	-	-	-	-	-
TOTAL ASSETS	93,848,150	90,702,961	90,198,408	91,452,701	91,882,468	91,234,633	93,212,754	93,893,998	93,356,038	92,066,177	89,526,299
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	1,400,476	1,667,688	1,976,705	2,333,778	2,746,124	3,222,085	3,752,896	4,163,747	4,622,988	4,529,198
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	1,400,476	1,667,688	1,976,705	2,333,778	2,746,124	3,222,085	3,752,896	4,163,747	4,622,988	4,529,198
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	-	-	-	-	-	-	-	-	-	-
Long term debt	46,924,075	41,445,318	38,969,312	36,123,534	32,852,762	29,093,525	24,772,877	19,806,975	14,099,454	7,539,561	-
Total Long Term Liabilities	46,924,075	41,445,318	38,969,312	36,123,534	32,852,762	29,093,525	24,772,877	19,806,975	14,099,454	7,539,561	-
<i>Shareholders' equity</i>											
Paid-up capital	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075	46,924,075
Retained earnings	-	933,091	2,637,333	6,428,387	9,771,854	12,470,908	18,293,716	23,410,052	28,168,762	32,979,553	38,073,026
Total Equity	46,924,075	47,857,166	49,561,408	53,352,462	56,695,929	59,394,983	65,217,792	70,334,127	75,092,837	79,903,628	84,997,101
TOTAL CAPITAL AND LIABILITY	93,848,150	90,702,961	90,198,408	91,452,701	91,882,468	91,234,633	93,212,754	93,893,998	93,356,038	92,066,177	89,526,299
<i>Note: Total assets value will differ from project cost due to first installment of leases paid at the start of year 0</i>											

11.3. Cash Flow Statement

Statement Summaries											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rs. in actuals										
<i>Operating activities</i>											
Net profit	-	1,866,182	4,341,575	10,219,441	13,115,320	15,169,962	24,116,525	28,526,387	32,927,472	37,790,344	43,166,499
Add: depreciation expense	-	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247	7,218,247
amortization expense	-	1,068,592	1,068,592	1,068,592	1,068,592	1,068,592	-	-	-	-	-
Deferred income tax	-	-	-	-	-	-	-	-	-	-	-
Accounts receivable	-	(1,869,863)	(172,603)	(370,377)	(424,027)	(484,704)	(553,277)	(630,716)	(577,964)	(508,353)	(559,188)
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	(325,000)	(79,250)	(96,009)	(116,060)	(140,020)	(168,619)	(202,720)	(174,790)	(201,883)	(233,175)	1,737,527
Raw material inventory	(1,300,000)	(394,000)	(502,150)	(638,348)	(809,603)	(1,024,635)	(1,294,277)	(1,252,233)	(1,515,202)	(1,833,394)	10,563,843
Pre-paid building rent	-	-	-	-	-	-	-	-	-	-	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(3,114,550)	311,455	311,455	311,455	311,455	311,455	311,455	311,455	311,455	311,455	311,455
Accounts payable	-	1,400,476	267,212	309,017	357,073	412,346	475,961	530,811	410,850	459,241	(93,790)
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(4,739,550)	9,521,839	12,436,318	18,001,967	20,697,037	22,502,643	30,071,914	34,529,161	38,572,977	43,204,365	62,344,592
<i>Financing activities</i>											
Change in long term debt	46,924,075	(5,478,757)	(2,476,006)	(2,845,778)	(3,270,772)	(3,759,236)	(4,320,648)	(4,965,903)	(5,707,520)	(6,559,893)	(7,539,561)
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	-	-	-	-	-	-	-	-	-	-
Land lease payment	-	-	-	-	-	-	-	-	-	-	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	46,924,075	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	93,848,150	(5,478,757)	(2,476,006)	(2,845,778)	(3,270,772)	(3,759,236)	(4,320,648)	(4,965,903)	(5,707,520)	(6,559,893)	(7,539,561)
<i>Investing activities</i>											
Capital expenditure	(87,199,200)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by invest	(87,199,200)	-	-	-	-	-	-	-	-	-	-
NET CASH	1,909,400	4,043,082	9,960,312	15,156,189	17,426,264	18,743,407	25,751,266	29,563,259	32,865,456	36,644,472	54,805,031
Cash balance brought forward	-	1,909,400	5,019,391	12,342,370	21,070,172	28,724,583	34,997,082	42,454,631	48,607,838	53,304,532	56,969,452
Cash available for appropriation	1,909,400	5,952,482	14,979,703	27,498,559	38,496,437	47,467,990	60,748,348	72,017,890	81,473,294	89,949,004	111,774,483
Dividend	-	933,091	2,637,333	6,428,387	9,771,854	12,470,908	18,293,716	23,410,052	28,168,762	32,979,553	38,073,026
Cash carried forward	1,909,400	5,019,391	12,342,370	21,070,172	28,724,583	34,997,082	42,454,631	48,607,838	53,304,532	56,969,452	73,701,457

12 KEY ASSUMPTIONS

12.1 Operating Cost Assumptions

Description	Details
Sales Price Growth Rate	10 % per year
Production Capacity Utilization Growth Rate	5 % per year
COGS growth rate	10 % per year
Wage growth rate	10 % per year
Operational cost growth rate	5 % per year

12.2 Production Cost Assumptions

Description	Details
Installed Capacity (kgs)	100,000,000
Production Capacity utilization in Y1	65%
Production capacity (kgs)	6,000,000
Maximum Capacity	95%
COGS	5

12.3 Revenue Assumptions

Description	Details
Sales price per unit	25
Sales price growth rate	10%
Total unit sales (kgs)	6,000,000
Total revenue	97,500,000

12.4 Financial Assumptions

Interest rate on long term debt	14%
Project Debt	50%
Project Equity Component	50%
Tax rate (15% sales tax + 7% income tax)	0%
Required rate of return on equity	23%
WACC	17%
Account receivable cycle	7 Days